REMARKS

Reconsideration of the application is requested in view of the above amendments and the following remarks. Claims 1-110 have been canceled without prejudice or disclaimer. Claims 42-80 and 86-110 were directed to non-elected inventions. New claims 111-164 have been added. The new claims are supported by at least original claims 1-41 and 81-85. No new matter has been added.

§103 Rejections

Claims 1-16, 18-20, 22-25, 32-35 and 81-85 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Frisch (U.S. 5,854,625) in view of Berstis (US 6,115,030). Claims 17, 21, 26-31 and 36-41 were also rejected under 35 U.S.C. § 103(a) as being unpatentable over Frisch (U.S. 5,854,625) in view of Berstis (US 6,115,030). Applicant respectfully traverses these rejections. Claims 1-41 and 81-85 have been canceled, rendering this rejection moot as to those claims. Applicant will address the Frisch and Berstis references below to the extent they are relevant to new claims 111-164. Applicant does not concede the correctness of this rejection.

New Claims

New claims 111-164 are directed to a force sensor for sensing a touch force applied to a touch surface. As claimed, the force sensor is a separate subcomponent of a touch sensitive device that is defined without reference to other features of the touch sensitive device. The claimed force sensors include "a first capacitor plate at least a portion of which is an elastic element that allows the first capacitor plate to move" (claim 111) or "a first capacitor plate having an elastic element portion" (claim 140). The claimed force sensors also include a second capacitor plate, wherein transmission of at least part of the touch force through the elastic element contributes to a change in capacitance between the first capacitor plate and the second capacitor plate. In other force sensitive touch devices, including those disclosed by Frisch and Berstis, the force sensors do not include elastic elements that are part of a capacitor plate.

Force sensitive touch devices may include a touch surface for receiving a touch input, a frame or substrate that supports the touch surface, and some type of sensor typically positioned between the touch surface and the frame or substrate that senses touch forces applied to the touch surface. Some force sensitive touch devices include a spring or other type of biasing member that helps

maintain the touch surface in a rest state relative to the frame or substrate and couples the touch surface to the frame or substrate. The sensors measure movement of the touch surface against the biasing forces of the spring.

Frisch discloses a variation of commonly known touch sensitive devices. Frisch discloses a touch sensitive device 10 that includes a frame member 12 that supports a top planar member 14. The planar member 14 is configured with a plurality of slots 16 that define a plurality of spring portions 20 and an outer mounting ring 22 spaced peripherally around a touch surface 18. A plurality of capacitors 24 are disposed at the periphery of the touch surface 18 between the top planar member 14 and the frame member 12. The capacitors 24 include a first member 24a disposed on the bottom of the touch surface 18 and a second plate 24b disposed on or integral with the frame member 12. The capacitors 24 function as the "sensors" of the device 10. When a touch force is applied to the touch surface portion 18 of the top or planar member 14, the touch surface 18 moves relative to the frame 12. As the touch surface 18 moves, the distance between the capacitive plates 24a, 24b changes thus creating a change in capacitive value that can be measured and used to determine a location of the touch force applied to the touch surface 18.

The capacitors 24 disclosed by Frisch are flat plates (see Figures 1, 2A and 2B of Frisch). The capacitors 24 have no other structure besides the flat plates shown. Further, the plates 24a, 24b are intended to maintain the same size and shape so as to provide a consistent change in the capacitive value with a change in distance between the two plates. Further, it is clear from Frisch that the touch surface 18, being part of the top planar member 14, is a distinct and separate member from the capacitors 24. Thus, it would be improper to interpret any feature of the top planar member 14 as being part of the capacitors 24.

Frisch also discloses spring members 20 that perform those functions described above for springs of commonly known touch sensitive devices. The springs 20 allow the touch surface 18 move relative to the frame 12 while helping retain the touch surface 18 in a predetermined rest state/position. The only member or feature of the device 10 disclosed by Frisch that flexes or has any elastic properties is the spring members 20 and the connection point of those spring members 20 to the mounting ring 22 and the touch surface 18.

The claimed force sensor is a separate member or feature from the touch surface to which the touch force is applied. As noted above, Frisch discloses a touch surface 18 and a senor type

device (capacitor 24) that senses a touch force applied to the touch surface 18. However, Frisch fails to disclose or suggest "a first capacitor plate at least a portion of which is an elastic element that allows the first capacitor plate to move" (claim 111) or "a first capacitor plate having an elastic element portion" (claim 140). The capacitive plates 24a, 24b disclosed by Frisch do not include an elastic element. The spring members 20 disclosed by Frisch are separate and distinct from the capacitive plates 24a, 24b. Further, the Mylar layer (which Applicant does not concede is correctly identified as an elastic member) applied to an exposed outer surface of the touch surface 18 is separated from the capacitive plates 24a, 24b by at least the touch surface 18 itself, which touch surface 18 is also a separate member from the capacitive plates 24a, 24b. Thus, the Mylar layer is clearly separate from the capacitor plates 24a, 24b and is not part of the first capacitor plate, as required by claims 111 and 140.

Berstis fails to remedy the deficiencies of Frisch as it relates to new claims 111 and 140. Berstis discloses several embodiments for a capacitive sensor input device. The device 20 disclosed in Figure 1A of Berstis includes a conductive cone 22 that is suspended above the sensing electrodes 30 by an articulating member 20. The articulating member 20 includes a shaft 24, oriented along a vertical axis, and a top 26 for user fingertip manipulation. An immobile support member 35 is coupled to the shaft 24 by a flexible member 32. The support member 35 is anchored to a board 28 with anchoring posts 37. The flexible member 32 is integral with the shaft 24 as illustrated with cross-hatching in Figure 1. The flexible member 32 is separated from the conductive cone 22 by portions of the shaft 24 and is a separate and distinct piece from the conductive cone 22.

Berstis also discloses with reference to Figures 4 and 7 another device wherein a conductive stud 320 is coupled to a substrate 321 by an elastomeric material 322. Figures 4 and 7 illustrate the conductive stud 320 including a conductive disk 323 and a shaft 324 as a single integral piece. However, the conductive stud 320 and substrate 321 are shown with cross-hatching as being separate and distinct pieces from the elastomeric material 322.

Berstis fails to disclose or suggest "a first capacitor plate at least a portion of which is an elastic element that allows the first capacitor plate to move" (claim 111) or "a first capacitor plate having an elastic element portion" (claim 140). The flexible member 32 and the elastomeric material 322 disclosed by Berstis are not part or portion of a capacitor plate. The flexible

member 32 and elastomeric member 322 are each separate and distinct pieces from the capacitive members 22 and 320, respectively. Therefore, neither Frisch nor Berstis discloses or suggests every limitation of claims 111 and 140 and the claims that depend from them.

Further to the above, Frisch and Berstis fail to disclose or suggest a first substantially planar element of a force sensor comprising "the elastic element portion defining an integral elevated feature of the first capacitor plate, the elastic element portion receiving at least part of the touch force into the first capacitor plate," as required by claim 140. The elastic features disclosed by Frisch and Berstis are not part of a capacitive plate and are not an elevated feature of a capacitor plate. Therefore, Frisch and Berstis fail to disclose or suggest every limitation of claim 140 for this additional reason.

In view of the above, Applicant requests reconsideration of the application in the form of a Notice of Allowance. If a phone conference would be helpful in resolving any issues related to this matter please contact Applicant's attorney listed below at 651.737.0631.

Respectfully submitted,

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